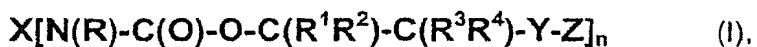


What is claimed is:

1. A compound which can be activated by actinic radiation, contains at least one urethane group and has
5 the general formula I:



in which the index and the variables have the following
10 meanings:

n is an integer from 1 to 5;

X is an at least n-valent, substituted or unsubstituted organic radical;

R is a hydrogen atom or a monovalent substituted or unsubstituted organic radical;

$R^1 - R^4$ independently of one another are a hydrogen atom, halogen atom or monovalent, substituted or unsubstituted organic radical, it being possible for at least two radicals to be cyclically linked to one another;

Y is a divalent, linking functional group containing at least one oxygen atom; and

Z is an organic radical containing at least one group which can be activated by actinic radiation;

with the proviso that at least for n = 1 the radical R and/or the radical X are/is substituted by at least one substituent of the general formula II:

5

Z-Y- (II),

in which the variables Z and Y are as defined above.

10 2. The compound as claimed in claim 1, wherein n = 1 or 2.

3. The compound as claimed in claim 1 or 2, wherein the bond which can be activated by actinic radiation in 15 the radicals Z is a carbon-carbon double bond (double bond).

4. The compound as claimed in claim 3, wherein the radicals Z have the general formula III:

20



in which the variables R^1 , R^2 , and R^3 are as defined above and the variable -B- is a single bond between the carbon atom of the double bond and the divalent linking functional group Y or is a divalent substituted or 5 unsubstituted linking organic radical x.

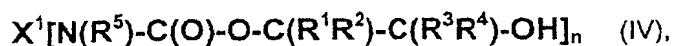
5. The compound as claimed in claim 4, wherein the radicals Z are vinyl radicals.

10 6. The compound as claimed in any of claims 1 to 5, wherein the divalent linking functional groups Y are selected from the group consisting of ether, carboxylate, carbonate, phosphate, phosphonate, phosphite ester, and sulfonate groups.

15 7. The compound as claimed in claim 6, wherein the divalent linking functional groups Y are carboxylate groups.

20 8. The process for preparing compounds which can be activated by actinic radiation and have the general formula I, as claimed in any of claims 1 to 7, which comprises reacting

25 (1) at least one compound which contains at least one urethane group and has the general formula IV:



in which the index n and the variables R¹, R², R³
and R⁴ are as defined above and the variable X¹ is
an n-valent and the variable R⁵ a monovalent,
5 hydroxyl-containing or hydroxyl-free substituted
(substituents of the general II being excluded) or
unsubstituted, organic radical; with the proviso
that at least for n = 1 the radical X¹ and/or
radical R⁵ contain/contains one hydroxyl group;
10 with

(2) at least one compound of the general formula V:

Y¹-Z (V),

15 in which the variable Z is as defined above and
the variable Y¹ is a reactive functional group
which forms at least one group Y with the hydroxyl
group or groups of the compounds of the general
20 formula IV;

in a Y¹ : OH equivalents ratio ≥ 1.0 .

9. The process as claimed in claim 8, wherein the
25 reactive functional group Y¹ is selected from the group
consisting of halogen atoms, carboxylic acid, sulfonic
acid, phosphoric acid, phosphonic acid, and phosphorous
acid groups; carbonyl halide, sulfonic halide,

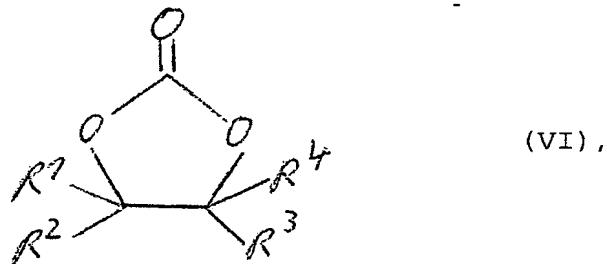
BEST AVAILABLE COPY

phosphoric halide, phosphoryl halide groups; carboxylic anhydride, sulfonic anhydride, phosphoric anhydride, phosphonic anhydride, and phosphoryl anhydride groups; carboxylic, sulfonate, phosphate, phosphonate, and 5 phosphite groups; and also epoxide, N-methylol, and N-methylol ether groups.

10. The process as claimed in claim 8 or 9, wherein the compound of the general formula VI is prepared by 10 reacting

(1) at least one 1,3-dioxolan-2-one of the general formula VI:

15



in which the variables R¹, R², R³, and R⁴ are as defined above; with

20 (2) at least one compound which contains at least one primary and/or secondary amino group and has the general formula VII:



25

BEST AVAILABLE COPY

in which the index and the variables x^1 and R^5 are as defined above,

in an amino group : carbonate group equivalents
5 ratio = 0.8 to 1.2.

11. Use of the compounds of the general formula I as claimed in any of claims 1 to 7 and of the compounds in the general formula I prepared by the process as 10 claimed in any of claims 8 to 10 as compositions curable by actinic radiation or for preparing compositions curable by actinic radiation or both thermally and by actinic radiation.

15 12. The use as claimed in claim 11, wherein the curable compositions are used as coating materials, adhesives or sealants for producing coatings, paint systems, adhesive films, and seals and also for producing moldings and self-supporting films.